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Air and Land Forces, Committee on
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DEFENSE ACQUISITIONS

Future Combat System Risks Underscore the Importance of Oversight

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Why GAO Did This Study

The Army's Future Combat System (FCS) is a program characterized by bold goals and innovative concepts—transformational capabilities, system-of-systems approach, new technologies, a first-of-a-kind information network, and a total investment cost of more than \$200 billion. As such, the FCS program is considered high risk and in need of special oversight and review.

Today's testimony is based on work conducted over the past year in response to (1) the National Defense Authorization Act for Fiscal Year 2006, which requires GAO to report annually on the FCS acquisition; and (2) the John Warner National Defense Authorization Act for Fiscal Year 2007, which requires GAO to report on the role of the lead systems integrator in the Army's FCS program. Accordingly, this statement discusses (1) the business case for FCS to be successful and (2) the business arrangements for the FCS program.

What GAO Recommends

GAO has recently recommended that the Secretary of Defense (1) establish specific criteria for evaluating the FCS program at a key 2009 decision and (2) analyze alternative courses of action in the event FCS is unlikely to deliver needed capabilities. DOD concurred with GAO's recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-07-672T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Paul L. Francis at (202) 512-4841 or francisp@gao.gov.

DEFENSE ACQUISITIONS

Future Combat System Risks Underscore the Importance of Oversight

What GAO Found

The Army has far less knowledge about FCS and its potential for success than is needed to fulfill the basic elements of a business case. Those elements are not new to the Army, nor to the Department of Defense (DOD), which addresses such criteria in its weapon system acquisition policy. The Army has made improvements to the program, such as lengthening time frames for demonstrating capabilities and for providing capabilities to current forces. While the Army has also made progress, what it still lacks in knowledge raises doubts about the soundness of the FCS business case. The Army has yet to fully define FCS requirements; FCS technologies that should have been matured in 2003, when the program started, are still immature; key testing to demonstrate FCS performance will not be completed and maturity of design and product will not be demonstrated until after production starts in 2013; and an independent cost estimate from the Office of the Secretary of Defense is between \$203 billion and \$234 billion, a far higher figure than the Army's cost estimate.

To achieve its goals for the FCS program, the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating the FCS. This decision reflected the fact that not only were FCS goals ambitious, but also that the Army had limited capacity to manage the undertaking. Boeing Corporation is the LSI. Its relationship with the Army on FCS breaks new ground for collaboration between the government and a contractor. The close working relationship has advantages and disadvantages. An advantage is that such a relationship allows flexibility in responding to shifting priorities. A disadvantage is an increase in risks to the Army's ability to provide oversight over the long term. The contract itself is structured in such a way as to enable the LSI to be paid over 80 percent of its costs and fees by completion of the critical design review in 2011—a point after which programs typically experience most of their cost growth. This is consistent with the Army's desire to provide incentives for the development effort. On the other hand, this contract, as with many cost-reimbursable research and development contracts, makes the contractor responsible for providing its best efforts, but does not assure a successful FCS.

The foregoing underscores the important role of the Office of the Secretary of Defense in providing oversight on the FCS program. To date, the Office of the Secretary of Defense has largely accepted the Army's approach to FCS, even though it runs counter to DOD's policy for weapon system acquisition. GAO believes the Office of the Secretary of Defense needs to hold the FCS program accountable to high standards at the congressionally directed decision in 2009 on whether to proceed with FCS. Financial commitments to production will grow rapidly after that point. The Office of the Secretary of Defense should also be mindful of the department-wide implications of the future use of LSIs as well as the system-of-systems approach to developing weapon acquisitions.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the Department of the Army's Future Combat System (FCS), a networked family of weapons and other integrated systems. FCS is in the forefront of efforts to help the Army transform itself into a lighter, more agile, and more capable combat force by using a new concept of operations, new technologies, and a new information network linking whole brigades together. This is an extraordinary undertaking that will involve a total investment cost on the order of \$200 billion over the next few decades.

My statement today is based on the work that we have conducted over the past year in response to (1) the National Defense Authorization Act for Fiscal Year 2006, which requires GAO to report annually on the product development phase of the FCS acquisition;¹ and (2) the John Warner National Defense Authorization Act for Fiscal Year 2007, which requires GAO to report on the role of the lead systems integrator in the Army's FCS program.² Accordingly, I will focus my statement on the business case and the business arrangements for the FCS program.

Summary

We look at a business case as comprising those elements that are key to making an acquisition likely to result in a product that performs as required for the time and money promised. A sound business case includes firm requirements; mature technologies; an acquisition strategy that demonstrates design and production maturity; and adequate funding to cover a realistic cost estimate. When FCS was approved to begin in May 2003, it was far from having a sound business case, especially given its unprecedented size and complexity. Specifically, requirements were not well defined; technologies were very immature; the acquisition strategy was aggressive and did not allow for demonstrating design and production maturity until after the production decision; and despite the insufficient basis for good cost estimates, providing the resources at the estimated costs was a great challenge. Since then, there have been a number of improvements in the program. The schedule was doubled to allow for more demonstrations and to spin capabilities out to the current forces; requirements are better understood, even to the system level; technologies have gotten more mature; cost estimates have grown substantially, making

¹ Pub. L. No. 109-163 §211

² Pub. L. No. 109-163 §115

them more realistic. Still, it is 4 years later, and progress should be expected. The Army, doing well by its own measures, is well behind business case measures. Requirements are still being defined; technologies are years away from needed maturity levels; key demonstrations of design and production will still come after the production decision; and independent cost estimates are significantly higher than the Army's.

To achieve its goals for the FCS program, in 2003 the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating the FCS. The Army's decision to employ a lead systems integrator for the FCS program was framed by two factors: (1) the ambitious goals of the FCS program and (2) the Army's limited capacity to manage it. In the case of the FCS, the Army has structured a contract with Boeing as the LSI to define a partner-like relationship and provide incentives for performance. Evaluating the use of an LSI on FCS involves consideration of several intertwined factors, such as the system-of-systems scope and the technical challenges. Our concerns about the executability of the program aside, the contract provisions and relationship with the LSI are both consistent with the Army's vision for FCS and candid with respect to its workforce limitations. On the other hand, the limits and risks of the contractual arrangements must also be recognized. The Army has forged a partner-like relationship with the LSI which at the same time involves the Army more with decisions the LSI makes and involves the LSI more with decisions the Army makes. When coupled with the scope and significance of the program, this situation poses risks for the Army's ability to provide oversight over the long term. The current FCS contract provides for a relatively high level of compensation for the LSI, over 80 percent of which can be earned by completion of the critical design review. This is significant because most key demonstrations occur after this review and, historically, most cost growth also occurs after the review. Because of the technical and other uncertainties, as a research and development contract, it is possible for the LSI to perform satisfactorily and earn its fees even if the FCS is unable to deliver the required performance.

The foregoing underscores the important role the Office of the Secretary of Defense (OSD) can play in providing oversight on the FCS program. While the Army works to manage the program, OSD must work to oversee the program. To date, OSD has largely accepted the Army's proposals for approving, planning, and restructuring FCS, even when they run counter to OSD's own policies and independent assessments. For a program with the unique arrangements, risks, and significance of the FCS, OSD's role in overseeing FCS requires more than milestone decisions at the beginning

and end of development, with annual reviews in between. OSD needs to hold the FCS program accountable to high standards, which are not necessarily the standards the Army adheres to. The go/no-go decision OSD will hold in 2009 will be important to defining its role in the program. We believe the use of an LSI on FCS is more significant than a contracting arrangement for a single program. It breaks new ground in collaborative relationships and increasing contractor responsibilities. Accordingly, we also believe OSD should put itself not only in a position to oversee the progress of the FCS program, but to evaluate the DOD-wide implications of the LSI and system-of-systems approach to developing weapons.

Background

The FCS concept is designed to be part of the Army's Future Force, which is intended to transform the Army into a more rapidly deployable and responsive force—one that differs substantially from the large division-centric structure of the past. The Army is reorganizing its current forces into modular brigade combat teams, each of which is expected to be highly survivable and the most lethal brigade-sized unit the Army has ever fielded. The Army expects FCS-equipped brigade combat teams to provide significant warfighting capabilities to DOD's overall joint military operations.

Fundamentally, the FCS concept is to replace mass with superior information—that is, to see and hit the enemy first rather than to rely on heavy armor to withstand a hit. This solution attempts to address a mismatch that has posed a dilemma to the Army for decades: the Army's heavy forces had the necessary firepower needed to win but required extensive support and too much time to deploy while its light forces could deploy rapidly but lacked firepower. If the Future Force becomes a reality, then the Army would be better organized, staffed, equipped, and trained for prompt and sustained land combat, qualities intended to ensure that the Army would dominate over evolving, sophisticated threats. The Future Force is to be offensively oriented and will employ revolutionary concepts of operations, enabled by new technology. The Army envisions a new way of fighting that depends on networking the force, which involves linking people, platforms, weapons, and sensors seamlessly together in a system-of-systems.

In 2006, Congress mandated that the Secretary of Defense conduct a milestone review for the FCS program, following the preliminary design

review scheduled for early 2009.³ Congress stated that the review should include an assessment of (1) whether the requirements are valid and can be best met with the FCS program, (2) whether the FCS program can be developed and produced within existing resources, and (3) whether the program should continue as currently structured, be restructured, or be terminated. The Congress required the Secretary of Defense to review specific aspects of the program, including the maturity of critical technologies, program risks, demonstrations of the FCS concept and software, and a new cost estimate and affordability assessment and to submit a report of the findings and conclusions of the review to Congress.

Congressional defense committees have asked GAO on numerous occasions to report and testify on FCS activities. This statement is based on work which was conducted between March 2006 and March 2007 and in accordance with generally accepted government auditing standards.

Status of FCS Business Case

In our March 2007 report,⁴ we found that despite the investment of \$8 billion already made in the FCS program, it still has significantly less knowledge—and less assurance of success—than required by best practices or DOD policy. By early 2009, enough knowledge should be available about the key elements of the FCS business case to make a well-informed decision on whether and how to proceed with the program. If significant doubts remain regarding the program’s executability, DOD will have to consider alternatives to proceeding with the program as planned. Central to the go/no-go decision will be demonstrable soundness of the FCS business case in the areas of requirements, technology, acquisition strategy, and finances. Our specific findings in the areas of requirements, technologies, acquisition strategy, and finances are summarized below.

Requirements Definition

The Army has made considerable progress in defining system-of-systems level requirements and allocating those requirements to the individual FCS systems. This progress has necessitated significant trade-offs to reconcile requirements and technical feasibility. A key example of this has been the decision to allow a significant increase in manned ground vehicle weight

³John Warner National Defense Authorization Act for Fiscal Year 2007, Pub. L. No. 109-364 §214 (2006).

⁴GAO, *Defense Acquisitions: Key Decisions to be Made on Future Combat System*, [GAO-07-376](#) (Washington, D.C.: Mar. 15, 2007).

to meet survivability requirements that in turn has forced trade-offs in transportability requirements. The feasibility of FCS requirements still depends on key assumptions about immature technologies, costs, and other performance characteristics like the reliability of the network and other systems. As current assumptions in these areas are replaced with demonstrated performance, more trade-offs are likely. At this point, the Army has identified about 70 high-level risks to be resolved to assure the technical feasibility of requirements. A challenge for the Army in making these trades—which are practical necessities—is determining the cumulative effect of an individual decision on overall requirements. For example, a decision to discontinue a munition technology could result in less lethality, possibly less survivability if our vehicles have to shoot more than once to defeat an enemy, and less responsiveness due to the weight added by carrying more ammunition and fuel.

As it proceeds to the preliminary design review and the subsequent go/no-go milestone, the Army faces considerable challenges in completing the definition of technically achievable and affordable system-level requirements, an essential element of a sound business case. The Army will have to complete definition of all system-level requirements and the network as well as the preliminary designs for all systems and subsystems. By the time of the review, it should be able to demonstrate that the FCS will satisfy key performance parameters and the Army's user community with a program that is as good as or better than what is available with current forces. To do this, the Army will have to mitigate FCS technical risks to significantly lower levels and make demonstrable progress toward meeting key FCS goals including weight reduction, reliability improvement, and average unit production cost reduction.

Maturity of Technology

The Army has made progress in the areas of critical technologies, complementary programs, and software development, but it will take several more years to reach the level of maturity needed in 2003. Program officials report that the number of critical technologies they consider as mature has doubled in the past year. While this is good progress by any measure, FCS technologies are far less mature at this point in the program than they should be, and they still have a long way to go to reach full maturity. The Army only sees the need to reach a technology readiness

level that requires demonstration of capabilities in a relevant environment⁵ by 2011. This does not assure that these capabilities will actually perform as needed in a realistic environment, as required by best practices for a sound business case. We also note that last year, technology maturity levels had been the result of an independent assessment, while the current levels have been determined by the FCS program office. The Army has made some difficult decisions to improve the acquisition strategies for some key complementary programs, such as Joint Tactical Radio System and Warfighter Information Network-Tactical, but they still face significant technological and funding hurdles. Finally, the Army and the LSI are attempting to utilize many software-development best practices and have delivered the initial increments of software on schedule. On the other hand, most of the software development effort lies ahead, and the amount of software code to be written—already an unprecedented undertaking—continues to grow as the demands of the FCS design becomes better understood. The Army and the LSI have recognized several high-risk aspects of that effort and mitigation efforts are underway.

As it approaches the preliminary design review and the subsequent go/no-go milestone review, the Army should have made additional progress in developing technologies and software as well as aligning the development of complementary programs with the FCS. The Army faces many challenges, such as demonstrating that critical technologies are mature and having this maturity independently validated. The Army will need to mitigate the recognized technical risks and integrate the technologies with other systems. It will also need to address cost, schedule, and performance risks related to software and mitigate those risks to acceptable levels. Finally, the Army must settle on the set of complementary programs that are essential for FCS success, ensure adequate funding for these systems, and align their schedules with the FCS schedule.

Knowledge-Based Acquisition Strategy

The FCS acquisition strategy and testing schedule has become more complex as plans have been made to spin out capabilities to current Army forces. The strategy acquires knowledge later than called for by best practices and DOD policy, although the elongated schedule of about 10 years provides a more realistic assessment of when capabilities can be

⁵Technology readiness levels (TRL) are measures pioneered by the National Aeronautics and Space Administration and adopted by DOD to determine whether technologies were sufficiently mature to be incorporated into a weapon system.

delivered. Knowledge deficits for requirements and technologies have created enormous challenges for devising an acquisition strategy that can demonstrate the maturity of design and production processes. Even if setting requirements and maturing technologies proceed without incident, FCS design and production maturity are not likely to be demonstrated until after the production decision is made. The critical design review will be held much later on FCS than other programs, and the Army will not be building production-representative prototypes to test before production. The first major test of the network and FCS together with a majority of prototypes will not take place until 2012. Much of the testing up to the 2013 production decision will involve simulations, technology demonstrations, experiments, and single-system testing. Only after that point, however, will substantial testing of the complete brigade combat team and the FCS concept of operations occur. However, production is the most expensive phase in which to resolve design or other problems found during testing. Spin-outs, which are intended to accelerate delivery of FCS capabilities to the current force, also complicate the acquisition strategy by absorbing considerable testing resources.

As the Army proceeds to the preliminary design review in 2009, it faces a number of key challenges in the remaining portions of the acquisition strategy. It must complete requirements definition and technology maturity. The spin-out capabilities must be demonstrated before committing to production. System integration must be completed and the Army should be preparing to have released at least 90 percent of the engineering drawings by the time of the critical design review, a best practice. Finally, the program schedule must allocate sufficient time, as needed, to test, fix and retest throughout the FCS test program. Each FCS system, the information network, and the FCS concept should be thoroughly tested and demonstrated before committing to low rate initial production in 2013.

Program Costs and Funding

In 2006, we reported that FCS program acquisition costs had increased to \$160.7 billion—76 percent—since the Army’s original estimate of \$91.4 billion (figures adjusted for inflation). While the Army’s current estimate of \$163.7 billion is essentially the same, an independent estimate from the Office of the Secretary of Defense puts the acquisition cost of FCS between \$203 billion and \$234 billion. The comparatively low level of technology and design knowledge at this point in the program portends future cost increases. Our work on a broad base of DOD weapon system programs shows that most developmental cost increases occur after the critical design review, which will be in 2011 for the FCS. Yet, by that point

in time, the Army will have spent about 80 percent of the FCS's development funds. Further, the Army has not yet fully estimated the cost of essential complementary programs and the procurement of spin-out items to the current force. The Army is cognizant of these resource tensions and has adopted measures in an attempt to control FCS costs. However, some of these measures do involve reducing program scope in the form of lower requirements and capabilities, which will have to be reassessed against the user's demands. Symptomatic of the continuing resource tension, the Army recently announced that it was restructuring several aspects of the FCS program, including reducing the scope of the program and its planned annual production rates to lower annual funding demands.

I do want to point out the significance of the financial commitments the Army will make in the next few years. The fiscal year 2008 request includes \$99.6 million in FCS procurement funds. Those funds are to procure long lead items for production of (1) non-line-of-sight cannon and other manned ground vehicles, and (2) the initial set of FCS spin-out kits. The fiscal year 2008 request will also fund plant facilitization to support FCS production beginning in fiscal year 2009. Procurement funds rise quickly thereafter, growing from \$328.6 million to \$1.27 billion to \$6.8 billion in fiscal years 2009, 2011, and 2013, respectively.

By the time of the preliminary design review and the congressionally mandated go/no-go milestone in 2009, the Army should have more of the knowledge needed to build a better cost estimate for the FCS program. The Army should also have more clarity about the level of funding that may be available to it within the long-term budget projections to fully develop and procure the FCS program of record. Also, by that time, the Army will need to have developed an official Army cost position that reconciles the gap between the Army's estimates and the independent cost estimate. In the cost estimate, the Army should clearly establish if it includes the complete set and quantities of FCS equipment needed to meet established requirements. Based on this estimate, the Army must ensure that adequate funding exists in its current budget and future years to fully fund the FCS program of record including the development of the complementary systems deemed necessary for the FCS as well as to procure the FCS capabilities planned to be spun out to the current forces.

Actions Recommended in Our March 2007 Report

In our March 2007 report, we noted that it was important that specific criteria—as quantifiable as possible and consistent with best practices—be established now to evaluate the sufficiency of program knowledge. We

recommended specific criteria that should be included in the Secretary of Defense's evaluation of the FCS program as part of the go/no-go decision following the preliminary design review in 2009. DOD agreed with this recommendation and noted that the decision will be informed by a number of critical assessments and analyses, but was unspecific as to criteria. We agree that while it is necessary that good information—such as that included in DOD's response—be presented at the decision, it is also necessary that quantitative criteria that reflect best practices be used to evaluate the information.

We also noted that in view of the great technical challenges facing the program, the possibility that FCS may not deliver the right capability must be acknowledged and anticipated. We therefore recommended that the Secretary of Defense analyze alternative courses of action DOD can take to provide the Army with sufficient capabilities, should the FCS be judged as unlikely to deliver needed capabilities in reasonable time frames and within expected funding levels. DOD agreed with this recommendation as well, citing it would rely on ongoing analyses of alternatives. We believe that it is important to keep in mind that it is not necessary to find a rival solution to FCS, but rather the next best solution should the program be judged unable to deliver needed capabilities.

FCS Program Recently Restructured

The Army recently made a number of key changes to FCS to keep program costs within available funding levels. Core program development and production costs were reduced by deleting or deferring four of the original systems, but these savings were offset by adding funding for spin-outs and ammunition, which had previously not been funded. The program's cost estimate reflecting the adjustment is now \$161.2 billion, a slight decrease from \$163.7 billion that we previously reported. Highlights include:

- Four systems deleted or deferred: the Class II and III unmanned aerial vehicles, the intelligent munitions system, and the armed robotic vehicle. The munitions system will continue outside of FCS, while the robotic vehicle will continue in the science and technology environment.
- Quantity changes: Class I unmanned aerial vehicle quantities will be cut in half. Quantities of non-line-of-sight launch systems and precision attack missiles were also reduced. The Army will buy eight additional Class IV unmanned aerial vehicles for each brigade combat team.

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- Production rate reduction: Annual FCS production will be reduced from 1.5 to 1 brigade combat team. This change will extend FCS production by about 5 years to 2030.
 - Consolidation of spin-outs: Spin-outs will be reduced from four to three and the content of the spin-outs have changed. The Army has now funded procurement of the spin-outs that had previously been unfunded.
 - Schedule extension: Initial FCS production has been delayed 5 months to February 2013 and initial and full operational capabilities dates have been delayed 6 months to June 2015 and June 2017, respectively.

According to Army officials, the Army's initial assessment found little difference between 14 and 18 systems on the capabilities of the FCS brigade combat team. When the program was approved in 2003, it also had 14 systems. In 2004, when it was restructured, 4 systems were added back in, bringing the total to 18, plus the network. It is not clear how the overall performance of the system can be insensitive to the changes in the composition of the FCS systems. Similarly, we do not yet have an understanding on why FCS production costs have not increased because of the lower production rates and consequent additional years of production. Generally, slowing down the production rate increases costs as the fixed costs of production facilities must be incurred for more years.

FCS Business Arrangements

To achieve the Army's goals for the FCS program, in 2003 the Army decided to employ a lead systems integrator (LSI) to assist in defining, developing, and integrating FCS. In the past few years, DOD and other agencies have applied the LSI concept in a variety of ways. In the case of the FCS program, the LSI shares program management responsibilities with the Army, including defining the FCS solution (refining requirements), selecting and managing subcontractors, and managing testing. Evaluating the use of the LSI on FCS involves consideration of several intertwined factors, which collectively make the LSI arrangement in the FCS context unique. Some, like the best efforts nature of a cost reimbursable research and development contract, are not unique to the LSI or to FCS. Other factors differ not so much in nature, but in degree from other programs. For example, FCS is not the first system-of-systems program DOD has proposed, but it is arguably the most complex. FCS is not the first program to proceed with immature technologies, but it has more immature technologies than other programs. FCS is not the first

program to employ an LSI, but the extent of the partner-like relationship between the Army and the LSI breaks new ground.

Army Use of an LSI Framed by Scope of Program and Workforce Limitations

The Army's decision to employ a lead systems integrator for the FCS program was framed by two factors: (1) the ambitious goals of the FCS program and (2) the Army's capacity to manage it. As envisioned in 2003 when the program started, FCS presented a daunting technical and management challenge: the concurrent development of multiple weapon systems whose capabilities would be dependent on an information network also to be developed. All of this was to take place in about 5½ years—much faster than a single weapon system typically takes. Army leaders believed the Army did not have the workforce or flexibility to manage development of FCS on its own within desired timelines. The Army saw its limitations in meeting this challenge as (1) cultural: difficulty in crossing traditional organizational lines; (2) capability: shortage of skills in key areas, such as managing the development of a large information network; and (3) capacity: insufficient resources to staff, manage, and synchronize several separate programs. In addition to the complexity and workforce implications of FCS, the Army saw an opportunity with an LSI to create more incentives for a contractor to give its best effort in development and to create more competition at lower supplier levels. Thus, they employed a contractor—a lead systems integrator—with significant program management responsibilities to help it define and develop FCS and reach across traditional Army mission areas. In May 2003, the Army hired the Boeing Corporation to serve as the LSI for the FCS system development and demonstration phase. Boeing subcontracted with Science Applications International Corporation, another defense contractor, to assist in performing the LSI functions.

Close Working Relationship Increases the Burden of Oversight

The relationship between the Army and the LSI is complicated. On the one hand, the LSI plays the traditional role of developing a product for its customer, the Army, and on the other hand the LSI acts like a partner to the Army in ensuring the design, development, and prototype implementation of the FCS network and family of systems. In forging a partner-like relationship with the LSI, the Army sought to gain managerial advantages such as maintaining flexibility to deal with shifting priorities. A partner-like relationship also poses long-term risks for the government. Depending on the closeness of the working relationship, the government's ability to provide oversight can be reduced compared with an arms-length relationship; more specifically, the government can become increasingly vested in the results of shared decisions and runs the risk of being less

able to provide oversight compared with an arms-length relationship, especially when the government is disadvantaged in terms of workforce and skills. In the case of FCS, these risks are present. The Army is more involved in the selection of subcontractors than we have seen on other programs, involvement that can, over time, make the Army somewhat responsible for the LSI's subcontracting network. On the other hand, the LSI is more involved with influencing the requirements, defining the solution, and testing that solution than we have seen on other programs. This is not to say that the level of involvement or collaboration between the Army and the LSI is inherently improper, but that it may have unintended consequences over the long term.

OSD is in a position to provide this oversight, but thus far has largely accepted the program and its changes as defined by the Army, even when they are at wide variance from the best practices embodied in OSD's own acquisition policies. In 2003, OSD approved the FCS for system development and demonstration prematurely despite the program's combination of immature technologies and short schedule and then declined to follow through on plans to make a better informed decision 18 months later. OSD has allowed the Army to use its cost estimates rather than OSD's own independent—and significantly higher—cost estimates and has agreed with the Army's determination that the bulk of cost increases since 2003 are the result of scope changes and thus do not trigger congressional reporting requirements. In the fiscal year 2007 National Defense Authorization Act, Congress mandated that DOD hold a formal go/no-go decision meeting on the FCS in 2009. DOD has since proposed a serious approach to making that decision, a step that is encouraging from an oversight perspective.

**Contract Provides
Incentives for Best Effort
but Cannot Assure Success**

The Army has structured the FCS contract consistent with its desire to incentivize development efforts and make it financially rewarding for the LSI to make such efforts. In that regard, the FCS contract pays well. According to an independent estimate from the Office of the Secretary of Defense, the fee payable to the LSI is relatively high based on the value of work it actually performs, and its average employee assigned to the program costs more than a federal executive. The business arrangement between the Army and LSI has been converted from an other transaction agreement to a Federal Acquisition Regulation-based contract. Yet, there remain substantive risks on whether the contract can result in a successful program outcome. As with many cost-reimbursable research and development contracts, the contractor is responsible for putting forth its best effort to ensure a successful FCS. However, if that system fails to

meet expectations or requirements despite that effort, the LSI is not responsible.

The Army provides incentive payments through nine program events called out in the current contract, for which the LSI must demonstrate progress in setting up and implementing various program processes. By the time the FCS critical design review is completed in 2011, the Army will have paid out over 80 percent of the costs of the LSI contract and the LSI will have had the opportunity to earn more than 80 percent of its total fee. While the Army rationally notes that it is important to use fees to encourage good performance early, the experiences of previous weapon systems shows that most cost growth occurs after the critical design review. Key demonstrations of the actual capabilities of FCS systems will take place after this point. The Army shares responsibility with the LSI for making key decisions and to some extent the Army's performance affects the performance of the LSI. For example, some of the technologies critical to the FCS are being developed by the Army, not the LSI. If the technologies do not perform as planned, the LSI may not be responsible for the consequent trade-offs in performance. Furthermore, the Army is responsible for all program changes and therefore can adjust its expectations of the LSI according to those changes and the LSI may still earn its full fee.

Mr. Chairman, this concludes my prepared statement. I would be happy to answer any questions you or members of the subcommittee may have.

Contacts & Staff Acknowledgments

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